Attachment 3–National Weather Service Gauge Description and Corrigenda, Broad at Blairs (Volume numbers appear on the copies)

VIII

BIRDS BRIDGE, TENNESSEE.

Birds Bridge, Tenn. Established November 1, 1906. Is on the Nolachucky River, 45 miles from its mouth. The width of the river at average low water is 300 feet. The drainage area above the station is 1,100 square miles.

The river gage, which belongs to the Weather Bureau, is a tape and weight gage of the Mott pattern, and is located on the steel highway bridge, being fastened to a vertical member on the east, or upstream side of the first span, 80 feet from the right bank of the river.

Graduation extends from zero to 37 feet above. Highest water was 32 feet in 1900; lowest, unknown. Flood stage is at 10 feet.

BISMARCK, NORTH DAKOTA.

No change since publication of Part VII.

BLACKROCK, ARKANSAS.

No change since publication of Part VII.

BLAIR, NEBRASKA.

No change since publication of Part VII.

BLAIRS, SOUTH CAROLINA.

Blairs, S. C. Established July 1, 1905. Is on the Broad River, 36 miles above its mouth, at Columbia, S. C. The width of the river at average low water is 430 feet. The drainage area above the station is 4,560 square miles.

The river gage which belongs to the United States Engineer Corps, is located about one-third of a mile from the Southern Railway station, about 300 feet below a high rocky point, and is protected from drift by the point and the curve in the river. It is in two sections. The lower section (0 to 9.4 feet) is inclined and is fastened to rock. It is made of 2 by 8 inch heart pine, is painted white, and graduated with Arabic numerals and wire nails. The upper section (9.5 to 30.5 feet) is vertical and is attached to the upper portion of a sweet gum tree. It is made of 1 by 4 inch pine and is painted white with graduations of black Roman numerals and lines. Chisel cuts for reference purposes are made in the rocks at the 3.5 and 10 foot marks.

B. M., United States Geological Survey, pipe with brass cap, near mail crane, west of Southern Railway station, is 37.5 feet above zero of the gage, and 293 feet above mean sea level. Nail in root of sweet gum tree to which upper section of gage is attached is 9.4 feet above zero of the gage, and 264.9 feet above mean sea level. Zero of gage is low-water mark of 1903.

Graduation extends from zero to 30.5 feet above. Highest water was 29 feet in June, 1886; lowest, 0.0 in 1903. Flood stage is at 14 feet.

BLUE RAPIDS, KANSAS.

No change since publication of Part VII.

BLUFF CITY, TENNESSEE.

Highest water since establishment of station was 11.6 feet on January 23, 1906. Flood stage is at 12 instead of 15 feet.

BONNERS FERRY, IDAHO.

No change since publication of Part VII.

BOONE, IOWA.

No change since publication of Part VII.

The river gage, which belongs to the United States Engineer Corps, is located on the Blair crossing bridge. It is a wire-cable gage of the Missouri River Commission pattern, with graduation burnt into horizontal 1 by 4 inch planking.

B. M. 360, United States Engineers, on west pier of bridge, south side, in third course of masonry below lower coping stone, is 19.4 feet above zero of the gage and 1,008.4 feet above mean sea level.

Graduation extends from zero to as far above as may be necessary. Highest water was 19.3 feet, on April 6, 1884; lowest, 0.0, on January 26, 1900. Flood stage is at 15 feet.

575.4 should be subtracted from observed readings to obtain true stages.

BLAIRS, SOUTH CAROLINA.

Blairs, S. C. Established July 1, 1905. Is on the Broad River, 36 miles above its junction with the Saluda River at Columbia, S. C. The width of the river at average low water is 430 feet. The drainage area above the station is 4,560 square miles.

The river gage was carried away by the flood of August, 1908, and a new one installed by the Weather Bureau in September, 1908, about 500 feet farther upstream. It is located about one-third of a mile from the Southern Railway station, about 300 feet from a high rocky point, and is in two sections. The first section (0 to 12 feet) is made of 2 by 8 inch timber, bolted to the rocks, and is painted white with black graduations. The second section (9.4 to 30.5 feet) is a vertical wooden staff, 1 by 4 inches, nailed to a sweet-gum tree, about 300 feet below the first section, and is painted white with black graduations.

B. M., U. S. G. S., pipe with brass cap, near mail crane west of Southern Railway station, is 37.5 feet above zero of the gage and 293 feet above mean sea level. Nail in root of sweet-gum tree to which upper section of gage is attached is 9.4 feet above zero of the gage and 264.9 feet above mean sea level. Zero of gage is low-water mark of 1903.

Graduation extends from zero to 30.5 feet above. Highest water was 31.1 feet, at 4 a. m., August 26, 1908; lowest, 0.0, in 1903. Flood stage is at 14 feet.

BLUE RAPIDS, KANSAS.

Blue Rapids, Kans. Established August 1, 1904. Is on the Big Blue River, 47 miles from its mouth, at Manhattan, Kans. The width of the river at average low water is 170 feet. The drainage area above the station is 8,075 square miles.

The river gage is a chain and weight gage of the United States Geological Survey pattern and is located on Union Pacific Railroad steel bridge No. 953. The gage box is on the north side of the bridge, 75 feet from the east land pier. An extension scale is provided.

B. M., cross (+) cut in top stone east side of south abutment, about 4 feet from where bridge structure begins, is 32 feet above zero of the gage and 1,096.5 feet above mean sea level. Top of ties where gage descends is 33 feet above zero of the gage and 1,097.5 above mean sea level.

Graduation extends from zero to 25 feet above. Highest water was 34 feet, on June 7 and 8, 1908; lowest, 0.0, date unknown. Flood stage is at 14 feet.

BLUFF CITY, TENNESSEE.

Bluff City, Tenn. Established March 10, 1902. Is on the South Fork of the Holston River, 35 miles from its mouth, at Rotherwood, Tenn. The width of the river at average low water is 250 feet. The drainage area above the station is 855 square miles.

The river gage, which belongs to Mr. J. W. Lockart, of Bluff City, is attached to the southwest face of the first pier from the east end of the Bristol, Elizabethtown and North Carolina Railroad bridge at Bluff City. It is made of 4 by 12 inch heart pine timber, and is graduated with brass tacks.

B. M., cross cut in upper surface of northwest corner of pier to which gage is attached, is 3.8 feet above zero of the gage and 1,372.4 feet above mean sea level. United States Geological Survey B. M., bronze tablet set in upstream side of capstone of left abutment of highway bridge at Bluff City, is 20.4 feet above zero of the gage, and 1,389 feet above mean sea level.

Graduation extends from 2 feet below to 15 feet above zero. Highest water since establishment of station was 11.7 feet, on June 14, 1907; lowest, −0.2 foot, on December 1, 7, 12, and 19, 1903. Flood stage is at 12 feet.

The river gage is a chain and weight gage and is fastened to the handrail of the bridge over Black River.

B. M., U. S. G. S., top of dam near gage location, is 14 feet above zero of the gage and 763 feet above mean sea level.

Graduation extends from zero to as far as may be necessary. Highest water was 27 feet, date unknown; lowest, 0.0, date unknown. Flood stage is between 15 and 18 feet. The utility of the station was destroyed by dams, and it was therefore discontinued on March 31, 1910.

BLACKROCK, ARKANSAS.

Blackrock, Ark. Established August 1, 1904. Is on the Black River, 67 miles from its mouth and 73 miles above Newport, Ark., on the White River. The width of the river at average low water is 631 feet. The drainage area above the station is 1,343 square miles.

The river gage is located at the lower end of the west side of the downstream wooden crib or bridge rest of the Kansas City, Fort Scott & Memphis (Frisco) Railroad bridge over Black River, about midway of the stream. It is made of 2 by 12 inch yellow heart pine and is painted white, with graduations cut into the wood and painted black. Figures for even feet are made of galvanized iron.

B. M. (U. S. W. B. 1904), ⅞-inch rivet bolt 6 inches long, drilled into top of solid limestone rock on right bank of river, near ferry landing, 2 feet from southwest corner of street crossing and about 800 feet south and 81 feet west of the gage, is 46 feet above zero of the gage and 271.8 feet above mean sea level. B. M., base of rail on bridge on which gage is located is 36.9 feet above zero of the gage and 262.7 feet above mean sea level. B. M., top of concrete coping of middle draw pier of same bridge is 28.4 feet above zero of the gage and 254.2 feet above mean sea level.

Graduation extends from 4 feet below to 36 feet above zero. Highest water was 29 feet, date unknown; lowest, 0.0, date unknown. Flood stage is at 12 feet.

BLAIR, NEBRASKA.

Blair, Nebr. Established August 16, 1904. Is on the Missouri River, 705 miles from its mouth and 36 miles above Omaha, Nebr. The width of the river at average low water is 600 feet. The drainage area above the station is 321,551 square miles.

The river gage, which belongs to the United States Engineer Corps, is located on the Blair crossing bridge. It is a wire-cable gage of the Missouri River Commission pattern, with graduation burnt into horizontal 1 by 4 inch planking.

B. M., 360, United States Engineers, on west pier of bridge, south side, in third course of masonry below lower coping stone, is 19.4 feet above zero of the gage and 1,008.4 feet above mean sea level.

Graduation extends from zero to as far above as may be necessary. Highest water was 19.3 feet, on April 6, 1884; lowest, 0.0, on January 26, 1900. Flood stage is at 15 feet.

575.4 should be subtracted from observed readings to obtain true stages.

BLAIRS, SOUTH CAROLINA.

Blairs, S. C. Established July 1, 1905. Is on the Broad River, 36 miles above its junction with the Saluda River at Columbia, S. C. The width of the river at average low water is 430 feet. The drainage area above the station is 4,560 square miles.

The river gage is located about one-third of a mile from the Southern Railway station, about 300 feet from a high rocky point, and is in two sections. The first section (0 to 12 feet) is made of 2 by 8 inch timber, bolted to the rocks, and is painted white with black graduations. The second section (9.4 to 30.5 feet) is a vertical wooden staff, 1 by 4 inches, nailed to a sweet-gum tree, about 300 feet below the first section, and is painted white with black graduations.

B. M., U. S. G. S., pipe with brass cap, near mail crane west of Southern Railway station, is 37.5 feet above zero of the gage and 293 feet above mean sea level. B. M., nail in root of sweet-gum tree, to which upper section of gage is attached, is 9.4 feet above zero of the gage and 264.9 feet above mean sea level. Zero of gage is low-water mark of 1903.

Graduation extends from zero to 30.5 feet above. Highest water was 31.1 feet, at 4 a. m., August 26, 1908; lowest, 0.0, in 1903. Flood stage is at 14 feet.

Zero of gage coincides with low water of November 3, 1889, and is 1,617.2 feet above mean sea level. B. M., top of rail at east end of Northern Pacific Railway depot, is 53.2 feet above zero of the gage, and 1,670.4 feet above mean sea level. B. M., top of stringer from which gage hangs, is 73.2 feet above zero of the gage and 1,690.4 feet above mean sea level.

BLACKROCK, ARK.

The river gage is located at the lower end of the west side of the downstream wooden crib or bridge rest of the Kansas City, Fort Scott & Memphis (Frisco) Railroad bridge over Black River, about midway of the stream. It is made of 2 by 12 inch yellow heart-pine and is painted white, with graduations cut into the wood and painted black. Figures for even feet are made of galvanized iron. Graduation extends from 4 feet below to 36 feet above zero.

B. M. (U. S. W. B. 1904), ⅞-inch rivet bolt 6 inches long, drilled into top of solid limestone rock on right bank of river, near ferry landing, 2 feet from southwest corner of street crossing and about 800 feet south and 81 feet west of the gage, is 46 feet above zero of the gage and 271.8 feet above mean sea level. B. M., base of rail on bridge on which gage is located is 36.9 feet above zero of the gage and 262.7 feet above mean sea level. B. M., top of concrete coping of middle draw pier of same bridge, is 28.4 feet above zero of the gage and 254.2 feet above mean sea level.

BLAIR, NEBR.

The river gage, which belongs to the United States Engineer Corps, is located on the Blair crossing bridge. It is a wire-cable gage of the Missouri River Commission pattern, with graduation burnt into horizontal 1 by 4 inch planking. Distance from marker on cable to lower end of weight, 83.3 feet.

B. M. 360, United States Engineers, on west pier of bridge, south side, in third course of masonry below lower coping stone, is 19.4 feet above zero of the gage and 1,007.7 feet above mean sea level.

575.4 should be subtracted from observed readings to obtain true stages.

BLAIRS, S. C.

The river gage is located about one-third of a mile from the Southern Railway station, about 300 feet from a high rocky point, and is in two sections. The first section (0 to 12 feet) is made of 2 by 8 inch timber, bolted to the rocks, and is painted white with black graduations. The second section (9.4 to 30.5 feet) is a vertical wooden staff, 1 by 4 inches, nailed to a sweet-gum tree, about 300 feet below the first section, and is painted white with black graduations. Graduation extends from zero to 30.5 feet above.

B. M., U. S. G. S., pipe with brass cap, near mail crane west of Southern Railway station, is 37.5 feet above zero of the gage and 293 feet above mean sea level. B. M., nail in root of sweet-gum tree, to which upper section of gage is attached, is 9.4 feet above zero of the gage and 264.9 feet above mean sea level. Zero of gage is low-water mark of 1903.

BLUE RAPIDS, KANS.

The river gage is a chain and weight gage and is located on Union Pacific Railroad steel bridge No. 953. The gage box is on the north side of the bridge, 75 feet from the east land pier. An extension scale is provided. Distance from marker on chain to lower end of weight, 36.6 feet.

B. M., cross (+) cut in top stone, east side of south abutment, about 4 feet from where bridge structure begins, is 32 feet above zero of the gage and 1,096.5 feet above mean sea level. B. M., top of ties where gage descends, is 33 feet above zero of the gage and 1,097.5 above mean sea level.

BLUFF CITY, TENN.

The river gage, which belongs to Mr. J. W. Lockart, of Bluff City, is attached to the southwest face of the first pier from the east end of the Bristol, Elizabethtown & North Carolina Railroad bridge at Bluff City. It is made of 4 by 12 inch heart-pine timber, and is graduated with brass tacks. Graduation extends from 2 feet below to 15 feet above zero.

B. M., cross cut in upper surface of northwest corner of pier to which gage is attached, is 3.8 feet above zero of the gage and 1,359.6 feet above mean sea level. B. M., U. S. G. S., bronze tablet set in upstream side of capstone of left abutment of highway bridge at Bluff City, is 20.4 feet above zero of the gage and 1,376.2 feet above mean sea level.

BLUFFTON, IND.

The river gage is painted on the south side of the east end of the middle concrete pier of the Wabash Valley Traction Co. bridge, and consists of white graduations on a 12-inch black surface. Graduation extends from 2 to 17.6 feet above zero.

B. M. (U. S. W. B. 1904), ⅞-inch rivet bolt 6 inches long, drilled into top of solid limestone rock on right bank of river, near ferry landing, 2 feet from southwest corner of street crossing and about 800 feet south and 81 feet west of the gage, is 46 feet above zero of the gage and 271.8 feet above m. s. l. B. M., base of rail on bridge on which gage is located is 36.9 feet above zero of the gage and 262.7 feet above m. s. l. B. M., top of concrete coping of middle draw pier of same bridge, is 28.4 feet above zero of the gage and 254.2 feet above m. s. l.

BLAIR, NEBR.

The river gage, which belongs to the U. S. Engineer Corps, is located on the Blair crossing bridge. It is a wire-cable gage of the M. R. Commission pattern. Distance from marker on cable to lower end of weight, 83.3 feet.

B. M. 360, U. S. E., on west pier of bridge, south side, in third course of masonry below lower coping stone. is 19.4 feet above zero of the gage and 1,007.7 feet above m. s. l.

575.4 should be subtracted from observed readings to obtain true stages.

BLAIRS, S. C.

The river gage is located about one-third of a mile from the Southern Railway station, about 300 feet from a high rocky point, and is in two sections. The first section (0 to 15 feet) is bolted to the rocks. The second section, which belongs to the U. S. Engineer Corps (14 to 34 feet) is nailed to a sweet-gum tree, about 200 feet below the first section. Graduation extends from zero to 30.5 feet above.

B. M., U. S. G. S., pipe with brass cap, near mail crane west of Southern Railway station, is 37.5 feet above zero of the gage and 293 feet above m. s. l. B. M., nail in root of sweet-gum tree, to which upper section of gage is attached, is 9.4 feet above zero of the gage and 264.9 feet above m. s. l. Zero of gage is low-water mark of 1903.

BLUE RAPIDS, KANS.

The river gage is a chain and weight gage and is located on U. P. Ry. steel bridge No. 953. The gage box is on the north side of the bridge, 75 feet from the east land pier. An extension scale is provided. Distance from marker on chain to lower end of weight, 36.6 feet.

B. M., cross (+) cut in top stone, east side of south abutment, about 4 feet from where bridge structure begins, is 32 feet above zero of the gage and 1,096.5 feet above m. s. l. B. M., top of ties where gage descends, is 33 feet above zero of the gage and 1,097.5 feet above m. s. l.

BLUFF CITY, TENN.

The river gage, which belongs to Mr. J. W. Lockart, of Bluff City, is attached to the southwest face of the first pier from the east end of the Bristol, Elizabethtown & North Carolina Railroad bridge at Bluff City. Graduation extends from 2 feet below to 15 feet above zero.

B. M., cross cut in upper surface of northwest corner of pier to which gage is attached, is 3.8 feet above zero of the gage and 1,359.6 feet above mean sea level. B. M., U. S. G. S., bronze tablet set in upstream side of capstone of left abutment of highway bridge at Bluff City, is 20.4 feet above zero of the gage and 1,376.2 feet above m. s. l.

BLUFFTON, IND.

A new river gage was installed on August 22, 1913. It is attached to the south side of the east end of middle concrete pier of the Wabash Valley Traction Co. bridge. Graduation extends from 1 foot below to 19.6 feet above zero.

B. M., + BM near inside angle of southeast corner of south abutment of Wabash Valley Traction Co. bridge, is 21.9 feet above zero of the gage and 811.9 feet above m. s. l. B. M., notch cut in first stone above pavement in northeast corner of the courthouse, is 36.7 feet above zero of the gage and 826.7 feet above m. s. l.

BONNERS FERRY, IDAHO.

The river gage is attached to the south side of the first pier of the county highway bridge, 248 feet from the bank. The pier is V shaped at the upper end, and is made of rock covered with heavy plank sheathing. Graduation extends from 2 feet below to 38 feet above zero.

B. M., U. S. G. S., is 40.5 feet above zero of the gage and 1,770 feet above m. s. l. B. M., three large zinc spikes in form of a triangle, driven into west side of top stringer on Kootenai Valley Railway bridge over the Kootenai River, is 42.1 feet above zero of the gage and 1,771.6 feet above m. s. l.

U. S. E. B. M. 1271, copper bolt in tile surmounted by iron pipe in corner of dooryard of H. L. Fisher, at corner of Seventh and Washington Streets; is 1,077.45 feet above m. s. l.

575.4 feet are subtracted from the observed readings to obtain true stages.

BLAIRS, S. C.

On the Broad River.

On January 11, 1917, levels were run to the gage and the high section was found to be 0.35 foot too high. Readings for 1916 have been corrected. Section 1 (0 to 15 feet) was changed by attaching an enameled scale to the old gage. Section 2 (15 to 30.4 feet) and section 3 (30 to 45 feet) are new. Section 2 is attached to a pine tree 150 feet downstream from section 1. Section 3 is attached to a pine tree 100 feet downstream from section 1.

U. S. G. S. B. M., iron post stamped "293 Columbia," 100 feet S. of road crossing, about 300 feet N. of depot, 12 feet E. of E. rail of S. Ry., is 38.65 feet above zero of the gage and 292.46 feet above m. s. l. B. M., 60 d. nail in N. side of tree to which section 3 is attached, is 30.69 feet above zero of the gage and 284.50 feet above m. s. l.

BLUE RAPIDS, KANS.

On the Big Blue River.

A chain and weight gage is located on U. P. Ry. steel bridge No. 953. The gage box is on the N. side of the bridge, 75 feet from the E. land pier. Distance from marker on chain to lower end of weight, 36.6 feet.

B. M., cross (+) cut in top stone, east side of south abutment, about 4 feet from where bridge structure begins, is 32 feet above zero of the gage and 1,096.5 feet above m. s. l. B. M., top of ties where gage descends, is 33 feet above zero of the gage and 1,097.5 feet above m. s. l.

BLUFF CITY, TENN.

On the South Fork, Holston River, 74 miles above Rogersville, Tenn.

The gage is attached to the downstream end of N. channel pier of steel highway bridge. Graduation extends from 0 to 15 feet.

U. S. G. S. B. M. bronze tablet stamped "1389 ASH," is 20.44 feet above zero of the gage and 1,388.55 feet above m. s. l. B. M., top of foundation of pier at gage, is about 3.8 feet on the gage.

BLUFFTON, IND.

On the Wabash River, 70 miles above Logansport, Ind.

The gage is attached to the S. side of the E. end of middle concrete pier of the Wabash Valley Traction Co. bridge. Graduation extends from 1 foot below to 19.6 feet above zero.

B. M., + BM near inside angle of SE. corner of S. abutment of Wabash Valley Traction Co. bridge, is 21.9 feet above zero of the gage and 811.88 feet above m. s. l. B. M., notch cut in first stone above pavement in northeast corner of the courthouse, is 36.7 feet above zero of the gage and 826.67 feet above m. s. l.

BONNERS FERRY, IDAHO.

On the Kootenai River, 279 miles above Northport, Wash.

The river gage is attached to the S. side of the first pier of the county highway bridge, 248 feet from the bank. The pier is V shaped at the upper end, and is made of rock covered with heavy plank sheathing. Graduation extends from 2 feet below to 38 feet above zero.

B. M., U. S. G. S., is 40.5 feet above zero of the gage and 1,770 feet above m. s. l. B. M., three large zinc spikes in form of a triangle, driven into west side of top stringer on Kootenai Valley Railway bridge over the Kootenai River, is 42.1 feet above zero of the gage and 1,771.58 feet above m. s. l.

BOONE, IOWA.

On the Des Moines River, 46 miles above Fort Dodge, Iowa.

A chain and weight gage is located on the C. & N. Ry. viaduct over the Des Moines River, 4 miles west of the city of Boone. Distance from marker on chain to lower end of weight, 189.3 feet.

B. M., top of guardrail of viaduct to which gage is attached, is 187.15 feet above zero of the gage and 1,050.8 feet above m. s. l.

XV

BISMARCK, N. DAK.

On the Missouri River, 195 miles above Pierre, S. Dak.

A chain and weight gage is attached to truck stringer of N. P. Ry. bridge, 2 miles from city. Distance from marker on cable to the lower end of the weight, 73.6 feet.

Zero of gage coincides with low water of November 3, 1889, and is 1,617.2 feet above mean sea level. B. M., top of rail at E. end of N. P. Ry. depot, is 53.2 feet above zero of gage and 1,670.4 feet above m. s. l. B. M., top of stringer from which gage hangs, is 73.2 feet above zero of gage and 1,690.4 feet above m. s. l.

BLACK ROCK, ARK.

On the Black River, 73 miles above Newport, Ark.

The gage was moved to second pier from N. end of Frisco bridge, November 26, 1912. It is in two sections—4 to 15 feet and 15 to 27 feet.

B. M. (U. S. W. B. 1904), ⅝-inch rivet bolt 6 inches long, drilled into top of solid limestone rock on right bank of river, near ferry landing, 2 feet from SW. corner of street crossing and about 900 feet S. and 81 feet W. of gage, is 46 feet above zero of gage and 271.76 feet above m. s. l. B. M., base of rail on bridge on which gage is located, is 36.9 feet above zero of gage and 262.66 feet above m. s. l. B. M., top of concrete coping of middle draw pier of same bridge, is 28.4 feet above zero of gage and 254.16 feet above m. s. l.

BLACKWELL, MO.

On the Big River. 72 miles above Glencoe, Mo.

The gage is in two sections. Section 1 (1.2 to 18.9 feet) is inclined and is located 25 feet S. of mile post 50/25. Section (18.0 to 36.5 feet) is attached to N. side of L. E. Cole & Co.'s store, 2,600 feet upstream from the low section.

B. M. U. S. G. S., on top of E. end of N. abutment of St. L., I. M. & S. bridge No. 46, ¾ mile S. of Blackwell station. Copper b. m. bolt gone, and hole covered with concrete; elevation of point taken to be the same, which is 23.08 feet above zero of gage and 594.91 feet above m. s. l.

B. M. NW. corner of N. concrete step to door of Bank of Blackwell, is 27.88 feet above zero of gage.

B. M., brass rod driven nearly flush into SE. side, 9 feet above ground, of a 3-foot locust tree, 90 feet W. of railroad at highway crossing, Blackwell, Mo., is 24.05 feet above zero of gage.

BLAIR, NEBR. (U. S. ENGINEER GAGE).

On the Missouri River, 36 miles above Omaha.

A wire-cable gage is attached to the Blair crossing bridge. Distance from marker on cable to the lower end of weight, 83.3 feet.

U. S. E. B. M. 366, on W. pier of bridge, S. side, in third course of masonry below lower coping stone, is 19.36 feet above zero of gage and 1,007.7 feet above m. s. l.

U. S. E. B. M. 1271, copper bolt in tile surmounted by iron pipe in corner of dooryard of H. L. Fisher, at corner of Seventh and Washington Streets, is 1,077.45 feet above m. s. l.

575.4 feet are subtracted from the observed readings to obtain true stages.

BLAIRS, S. C.

On the Broad River.

Section 1 of gage (0 to 15 feet) is an enameled scale attached to granite boulders about 100 feet downstream from ferry landing, Section 2 (15 to 30.4 feet) is attached to a pine tree 150 feet downstream from first section. Section 3 (30 to 45 feet) is attached to a pine tree 100 feet downstream from the first section.

U. S. G. S. B. M., iron post stamped "293 Columbia," 100 feet S. of road crossing, about 300 feet N. of depot, 12 feet E. of E. rail of S. Ry., is 38.65 feet above zero of gage and 292.46 feet above m. s. l. B. M., 60 d. nail in N. side of tree to which section 3 is attached, is 30.69 feet above zero of gage and 284.50 feet above m. s. l.

BLUE RAPIDS, KANS.

On the Big Blue River.

A chain and weight gage is located on U. P. Ry. steel bridge No. 953. The gage box is on N. side of bridge, 75 feet from E. land pier. Distance from marker on chain to lower end of weight, 36.6 feet.

B. M., cross (+) cut in top stone, E. side of S. abutment, about 4 feet from where bridge structure begins, is 32 feet above zero of gage and 1,096.5 feet above m. s. l. B. M., top of ties where gage descends, is 33 feet above zero of gage and 1,097.5 feet above m. s. l.

XVI

BLACK ROCK, ARK.

On the Black River, 73 miles above Newport, Ark.

The gage is on second pier from N. end of Frisco bridge. It is in two sections, 4 to 15 feet and 15 to 27 feet.

B. M. (U. S. W. B. 1904), ⅞-inch rivet bolt 6 inches long, drilled into top of solid limestone rock on right bank of river, near ferry landing, 2 feet from SW. corner of street crossing and about 900 feet S. and 81 feet W. of gage, is 46 feet above zero of gage and 271.76 feet above m. s. l. B. M., base of rail on bridge on which gage is located, is 36.9 feet above zero of gage and 262.66 feet above m. s. l. B. M., top of concrete coping of middle draw pier of same bridge, is 28.4 feet above zero of gage and 254.16 feet above m. s. l.

BLACKWELL, MO.

On the Big River, 72 miles above Glencoe, Mo.

Section 1, 1.2 to 18.9 feet, is inclined and is located 25 feet S. of mile post 50/25. Section 2, 18.0 to 36.5 feet, is attached to N. side of L. E. Cole & Co's store, 2,600 feet upstream from section 1.

B. M. U. S. G. S., on top of E. end of N. abutment of St. L., I. M. & S. bridge No. 46, ¾ mile S. of Blackwell station. Copper b. m. bolt gone, and hole covered with concrete; elevation of point taken to be the same, which is 23.08 feet above zero of gage and 594.91 feet above m. s. l.

B. M. NW. corner of N. concrete step to door of Bank of Blackwell, is 27.88 feet above zero of gage.

B. M., brass rod driven nearly flush into SE. side, 9 feet above ground, of a 3-foot locust tree, 90 feet W. of railroad at highway crossing, Blackwell, Mo., is 24.05 feet above zero of gage.

BLAIR, NEBR. (U. S. ENGINEER GAGE).

On the Missouri River, 36 miles above Omaha.

A wire-cable gage is attached to the Blair crossing bridge. Distance from marker on cable to the lower end of weight, 83.3 feet.

U. S. E. B. M. 300, on W. pier of bridge, S. side, in third course of masonry below lower coping stone, is 19.36 feet above zero of gage and 1,007.7 feet above m. s. l.

U. S. E. B. M. 1271, copper bolt in tile surmounted by iron pipe in corner of dooryard of H. L. Fisher, at corner of Seventh and Washington Streets, is 1,077.45 feet above m. s. l.

575.4 feet are subtracted from the observed readings to obtain true stages.

BLAIRS, S. C.

On the Broad River.

Section 1 of gage, 0 to 15 feet, is an enameled scale attached to granite boulders about 100 feet downstream from ferry landing, Section 2, 15 to 30.4 feet, is attached to a pine tree 150 feet downstream from first section. Section 3, 30 to 45 feet, is attached to a pine tree 100 feet downstream from the first section.

U. S. G. S. B. M., iron post stamped "293 Columbia," 100 feet S. of road crossing, about 300 feet N. of depot, 12 feet E. of E. rail of S. Ry., is 38.65 feet above zero of gage and 292.46 feet above m. s. l. B. M., 60 d. nail in N. side of tree to which section 3 is attached, is 30.69 feet above zero of gage and 284.50 feet above m. s. l.

BLUE RAPIDS, KANS.

On the Big Blue River.

A chain and weight gage is located on U. P. Ry. steel bridge No. 953. The gage box is on N. side of bridge, 75 feet from E. land pier. Distance from marker on chain to lower end of weight, 36.6 feet.

B. M., cross cut top of fifth steel floor beam, downstream side of bridge, directly under the gage box, is 35.73 feet above zero of gage and 1,117.11 feet above m. s. l. B. M., cross cut in steel plate, S. end, E. side of bridge, just N. of retaining wall 0.8 foot from S. end of plate, is 35.64 feet above zero of gage and 1,117.02 feet above m. s. l. B. M., top of copper, cemented into top of NE. coping stone of S. abutment, downstream side, is 29.80 feet above zero of gage and 1,111.18 feet above m. s. l.

The change in elevation of zero is due to a change in the b. m. elevations.

BLUFFTON, IND.

On the Wabash River, 87 miles above Logansport, Ind.

The gage is attached to S. side of E. end of middle concrete pier of Wabash Valley Traction Co. bridge. Graduation extends from −1 to 19.6 feet.

B. M., cross near inside angle of SE. corner of S. abutment of Wabash Valley Traction Co. bridge, is 21.9 feet above zero gage and 811.87 feet above m. s. l. B. M., notch cut in first stone above pavement in NE. corner of courthouse, is 36.7 feet above zero of the gage and 826.67 feet above m. s. l.

XVII

Zero of gage coincides with low water of November 3, 1889, and is 1,617.2 feet above msl. B. M., top of rail at E. end of N. P. Ry. depot, is 53.2 feet above zero of gage and 1,670.4 feet above msl. B. M., top of stringer from which gage hangs, is 73.2 feet above zero of gage and 1,690.4 feet above msl.

BLACK ROCK, ARK.

On the Black River, 73 miles above Newport, Ark.

The gage is on piling, N. side of center pier of Frisco bridge. It is in two sections, −4 to 15 feet and 15 to 27 feet.

B. M. (U. S. W. B. 1904), top of bolt in top of limestone rock on right bank of river, near ferry landing, 2 feet from SW. corner of street crossing and about 900 feet S. and 81 feet W. of gage, is 46 feet above zero of gage and 271.76 feet above msl. B. M., base of rail on bridge on which gage is located, is 36.9 feet above zero of gage and 262.66 feet above msl. B. M., top of concrete coping of middle draw pier of same bridge, is 28.4 feet above zero of gage and 254.16 feet above msl.

BLACKWELL, MO.

On the Big River, 72 miles above Glencoe, Mo.

Section 1, 1.2 to 18.9 feet, is inclined and is located 25 feet S. of mile post 50/25. Section 2, 18.0 to 36.5 feet, is attached to N. side of L. E. Cole & Co.'s store, 2,600 feet upstream from section 1.

B. M. U. S. G. S., on top of E. end of N. abutment of St. L., I. M. & S. bridge No. 46, ¾ mile S. of Blackwell station. Copper b. m. bolt gone and hole covered with concrete; elevation of point taken to be the same, which is 23.08 feet above zero of gage and 594.91 feet above msl. B. M. NW. corner of N. concrete step to door of Bank of Blackwell, is 27.88 feet above zero of gage.

B. M., brass rod driven nearly flush into SE. side, 9 feet above ground, of a 3-foot locust tree, 90 feet W. of railroad at highway crossing, Blackwell, Mo., is 24.05 feet above zero of gage.

BLAIR, NEBR.

On the Missouri River, 36 miles above Omaha.

A chain gage is attached to the Blair crossing bridge. Distance from marker in chain to the lower end of weight, 83.3 feet.

U. S. E. B. M. 360, on W. pier of bridge, S. side, in third course of masonry below lower coping stone, is 19.36 feet above zero of gage and 1,007.7 feet above msl. U. S. E. B. M. 1271, copper bolt in tile surmounted by iron pipe in corner of dooryard of H. L. Fisher, at corner of Seventh and Washington Streets, is 1,077.45 feet above msl.

575.4 feet are subtracted from the observed readings to obtain true stages.

BLAIRS, S. C.

On the Broad River.

Section 1 of gage, 0 to 15 feet, is an enameled scale attached to granite boulders about 100 feet downstream from ferry landing. Section 2, 15 to 30.4 feet, is attached to a pine tree 150 feet downstream from first section. Section 3, 30 to 45 feet, is attached to a pine tree 100 feet downstream from the first section.

U. S. G. S. B. M., iron post stamped "293 Columbia," 100 feet S. of road crossing, about 300 feet N. of depot, 12 feet E. of E. rail of S. Ry., is 38.65 feet above zero of gage and 292.46 feet above msl. B. M., 60 d. nail in N. side of tree to which section 3 is attached, is 30.69 feet above zero of gage and 284.50 feet above msl.

BLOODY ISLAND, CALIF.

On the Sacramento River, just below the mouths of Battle and Cottonwood Creeks.

The gage is in four sections, attached to trees. Graduation extends from 0.5 to 40 feet.

B. M., head of 20d. spike in the root of a sycamore tree, 15 feet back of section No. 2, is 11.14 feet above zero of gage. B. M., top of a bent-over nail in the root of an oak tree, near the highway, 80 feet below the observer's house, is 30.41 feet above zero of gage.

BLACKWELL, MO.

On the Big River, 66 miles from its mouth.

Section 1 of gage, 1.2 to 18.9 feet, is inclined and is located 25 feet S. of mile post 50/25. Section 2, 18.0 to 36.5 feet, is attached to N. side of L. E. Cole & Co.'s store, 2,600 feet upstream from section 1.

B. M., U. S. G. S., on top of E. end of N. abutment of St. L., I. M. & S. bridge No. 46, ¾ mile S. of Blackwell station. Copper b. m. bolt gone and hole covered with concrete; elevation of point, taken to be same, is 23.08 feet above zero of gage and 594.91 feet above msl. B. M. NW. corner of N. concrete step to door of Bank of Blackwell, is 27.88 feet above zero of gage.

B. M., brass rod driven nearly flush into SE. side, 9 feet above ground, of a 3-foot locust tree, 90 feet W. of railroad at highway crossing, Blackwell, Mo., is 24.05 feet above zero of gage.

BLAIR, NEBR.

On the Missouri River, 36 miles above Omaha, Nebr.

A chain gage is attached to Blair crossing bridge. Distance from marker on chain to lower end of weight, 83.3 feet.

Gage B. M., U. S. E., on W. pier of R. R. bridge across Missouri River, on S. side of pier in third course of masonry below lower coping stone, being upper surface of projection, 0.5 foot below top of stone and 2.3 feet NE. of S. corner of pier, is 19.36 feet above zero of gage and 1,008.189 feet above msl.

B. M., $\frac{127}{1}$ U. S. E., copper bolt in tile surmounted by iron pipe in SE. corner of dooryard of H. L. Fisher, 7th and Washington Sts., is 89.779 feet above zero of gage and 1,078.608 feet above msl.

575.4 feet are subtracted from observed readings to obtain true stages.

BLAIRS, S. C.

On the Broad River, 36 miles from its mouth, near Columbia, S. C.

Section 1 of gage, 0 to 15 feet, is enameled steel scale attached to granite boulders about 100 feet downstream from ferry landing. Section 2, 15 to 30.4 feet, is attached to pine tree 150 feet downstream from first section. Section 3, 30 to 45 feet, is attached to pine tree 100 feet downstream from first section.

B. M., U. S. G. S., iron post stamped "293 Columbia," 100 feet S. of road crossing, about 300 feet N. of depot, 12 feet E. of E. rail of S. Ry., is 38.65 feet above zero of gage and 292.46 feet above msl. B. M., 60d. nail in N. side of tree to which section 3 is attached, is 30.69 feet above zero of gage and 284.50 feet above msl.

BLOODY ISLAND, CALIF.

On the Sacramento River, just below the mouths of Battle and Cottonwood Creeks, and 25 miles above Red Bluff, Calif.

Gage is in four sections, attached to trees. Graduation extends from 0.5 to 40 feet.

B. M., U. S. G. S., head of 20d. spike in root of sycamore tree, 15 feet back of section No. 2, is 11.14 feet above zero of gage. B. M., U. S. G. S., top of bent-over nail in root of oak tree, near highway, 80 feet below observer's house, is 30.31 feet above zero of gage.

Inspection on December 9, 1921, developed that three lower sections of gage are not correctly set. Corrections will be applied to readings when gage is read until changes have been made.

BLOUNTSTOWN, FLA.

On the Apalachicola River, 59 miles from its mouth.

Readings began September 17, 1921.

Gage is located about 600 feet above steamboat landing and is made of enameled steel in three sections. Section 1, 0 to 16 feet, is bolted to one of a cluster of four piles driven into river bottom about 15 feet from water's edge. Section 2, 13 to 20 feet, is bolted to post set deep in ground 330 feet W. of river. Section 3, 20 to 26 feet, is bolted to large water oak 20 feet W. of section 2 and 40 feet E. of railroad embankment.

B. M., U. S. E., top of 40d. nail driven into cut on base of water oak tree to which third section of gage is attached, is 17.56 feet above zero of gage. B. M., U. S. E., top of 40d. nail driven into root of large oak tree on river bank 25 feet downstream from first section of gage, is 9.08 feet above zero of gage. B. M., U. S. E., top of railroad rail opposite third section of gage, is 23.8 feet above zero of gage and corresponds to crest of high water of July, 1916. Zero of gage is 3 feet below lowest known water.

BLUE RAPIDS, KANS.

On the Big Blue River, 1½ miles below mouth of Little Blue.

Chain gage (short-box type) was removed on March 29, 1921, from U. P. R. R. bridge to steel highway bridge at foot of main street through town, and is located 190 feet S. of N. abutment on E., or downstream, side. Distance from marker on chain to lower end of weight, 47.77 feet. (Old length, 38.57 feet.)

Vertical high water section of gage, 32 to 37 feet, is attached to soft maple tree, 100 feet S. of N. side of First Street, the first cross street S. of highway bridge.

B. M. U. S. W. B., Hayes, 1917, cross cut on top of fifth steel floor beam, downstream side of U. P. R. R. [illegible] is 35.73 feet above zero of gage and 1,117.11 feet above msl. B. M.,

B. M., U. S. G. S., on top of E. end of N. abutment of M. P. R. R. bridge No. 46, ¼ mile S. of Blackwell station. Copper b. m. bolt gone and hole covered with concrete; elevation of point, taken to be same, is 23.08 feet above zero of gage and 594.91 feet above msl. B. M. NW. corner of N. concrete step to door of Bank of Blackwell, is 27.88 feet above zero of gage.

B. M., U. S. W. B., Hayes, 1916, brass rod driven nearly flush into SE. side, 9 feet above ground, of a 3-foot locust tree, 90 feet W. of railroad at highway crossing, Blackwell, Mo., is 24.05 feet above zero of gage.

No data for 1922.

BLAIR, NEBR.

On Missouri River, 36 miles above Omaha, Nebr.

Chain gage attached to downstream guardrail of span No. 3 of C. & N. W. R. R. bridge, S. 72. Chain length, 83.3 feet.

Gage B. M., U. S. E., on W. pier of C. & N. W. R. R. bridge across Missouri River, on S. side of pier in third course of masonry below lower coping stone, being upper surface of projection, 0.5 foot below top of stone and 2.3 feet N.E of S. corner of pier, is 19.36 feet above zero of gage and 1,008.189 feet above msl.

B. M., $\frac{127}{1}$ U. S. E., copper bolt in tile surmounted by iron pipe in SE. corner of dooryard of H. L. Fisher, 7th and Washington Sts., is 89.779 feet above zero of gage and 1,078.608 feet above msl.

575.4 feet are subtracted from observed readings to obtain true stages.

BLAIRS, S. C.

On Broad River, 36 miles from its mouth, near Columbia, S. C., on Congaree River.

Section 1 of gage, 0 to 15 feet, enameled steel scale attached to granite boulders about 100 feet downstream from ferry landing. Section 2, 15 to 30.4 feet, attached to pine tree 150 feet downstream from first section. Section 3, 30 to 45 feet, attached to pine tree 100 feet downstream from first section.

B. M., U. S. G. S., iron post stamped "293 Columbia," 100 feet S. of road crossing about 300 feet N. of depot, 12 feet E. of E. rail of S. Ry., is 38.655 feet above zero of gage and 292.465 feet above msl. B. M., 60d. nail in N. side of tree to which section 3 of gage is attached, is 30.69 feet above zero of gage and 284.50 feet above msl.

Dam of Parr Shoals Power Co., 13 miles below, makes normal pool of 4.1 feet.

BLOODY ISLAND, CALIF.

On Sacramento River, just below mouths of Battle and Cottonwood Creeks, and 24 miles above Iron Canyon, Calif.

Gage in four sections, attached to trees. Graduation from 0.5 to 40 feet.

B. M., U. S. G. S., head of 20d. spike in root of sycamore tree, 15 feet back of section No. 2, is 11.14 feet above zero of gage. B. M., U. S. G. S., top of bent-over nail in root of oak tree, near highway, 80 feet below observer's house, is 30.31 feet above zero of gage.

Inspection on December 9, 1921, developed that three lower sections of gage are not correctly set. Corrections will be applied to readings when gage is read until changes have been made.

BLOUNTSTOWN, FLA.

On Apalachicola River, 59 miles from its mouth.

Gage located about 600 feet above steamboat landing and made of enameled steel in three sections. Section 1, 0 to 16 feet, bolted to one of cluster of four piles driven into river bottom about 15 feet from water's edge. Section 2, 13 to 20 feet, bolted to post set deep in ground 330 feet W. of river. Section 3, 20 to 26 feet, bolted to large water oak 20 feet W. of section 2 and 40 feet E. of railroad embankment.

B. M., U. S. E., top of 40d. nail driven into cut on base of water-oak tree to which third section of gage is attached, is 17.56 feet above zero of gage. B. M., U. S. E., top of 40d. nail driven into root of large oak tree on river bank 25 feet downstream from first section of gage, is 9.08 feet above zero of gage. B. M., U. S. E., top of railroad rail opposite third section of gage, is 23.8 feet above zero of gage and corresponds to crest of high water of July, 1916. Zero of gage 3 feet below lowest known water.

BLUE RAPIDS, KANS.

On Big Blue River, 1½ miles below mouth of Little Blue, and 25 miles above Randolph, Kans.

Short-box chain gage on steel highway bridge at foot of main street through town, 190 feet S. of N. abutment on E., or downstream, side. Chain length, 47.77 feet.

Vertical-high water section of gage, 32 to 37 feet, attached to soft maple tree, 100 feet S. of N. side of First Street, the first cross street S. of highway bridge.

B. M., Flora, 1921, cross cut in top surface of iron shoe at NE. corner of highway bridge on which gage is located, E. end of N. abutment, is 43.33 feet above zero of gage and 1,124.71 feet above msl. B. M., Flora, 1921, ½-inch copper plug cemented vertically into top of NE. pier of highway bridge, 7½ inches from N. side of pier, and 4½ inches E. of steel shoe of bridge resting on pier, is 43.52 feet above zero of gage and 1,124.90 feet above msl.

Dam ¼ mile above gage. No effect on stages.

B. M., U. S. E., top of lower miter sill of lock, corresponds with zero of gage and is 602.6 feet above msl. B. M., top of upper miter sill, is 8.94 feet above zero of gage. Comb of dam is 14.94 feet above zero of gage.

BINGHAMTON, N. Y.

Susquehanna River, 57 miles above Towanda, Pa.

Mott gage attached to iron lattice guardrail on upstream side of left or S. span of Washington Street highway bridge. Tape length, 25.37 feet.

B. M., Hosmer, 1918, chisel draft on corner coping, upstream side of S. or left-hand bridge abutment of Washington Street Bridge, is 23.71 feet above zero of gage and 845.13 feet above msl. B. M., U. S. G. S., aluminum tablet stamped "867," in Broome County courthouse, W. end, at left of basement entrance from Collier Street, is 44.636 feet above zero of gage.

Small dam 50 feet N. of gage raises water about 0.2 foot when under 2.5 feet.

BISMARCK, N. DAK.

Missouri River, 277 miles above Pierre, S. Dak.

Cable gage attached to truck stringer of N. P. Ry. bridge, 2.5 miles from city. Cable length, 73.6 feet. Zero of gage coincides with low water of November 3, 1889, and is 1,617.2 feet above msl.

B. M., Bismarck Bridge, U. S. E., top of E. bolt on S. side of peir No. 1, being one of bolts that anchor iron work of bridge to pier, is 73.556 feet above zero of gage and 1,690.756 feet above msl. B. M., $\frac{186}{2}$, U. S. E., on left bank of river, about 1 mile below Bismarck Bridge, 850 feet from river on bench N. of railway track, 150 feet from track, is 57,860 feet above zero of gage.

BLACK ROCK, ARK.

Black River, 68 miles from mouth and 73 miles above Newport, Ark., on White River.

New gage installed September 4, 1928. Cut and painted, 4 to 34 feet, on W., or downstream, end of first pier from N. bank of St. L. & S. F. R. R. bridge, 3902. Low-water section will be painted later on pile about 15 feet NW of corner of gage pier.

B. M., U. S. W. B., 1904, top of bolt in top of limestone rock on right bank of river, near ferry landing, 2 feet from SW. corner of street crossing and about 800 feet S. and 155 feet W. of gage, is 46 feet above zero of gage and 275.976 feet above msl. B. M., U. S. E., bronze tablet marked, "U. S. Engineer Office, Little Rock, Ark.," in top of downstream end of right-bank pier of St. L. & S. F. R. R. bridge, 3902, over Black River, near Black Rock, Ark., is 30.652 feet above zero of gage. Top of concrete coping of middle draw pier of same bridge is 28.4 feet above zero of gage. Base of rail on bridge is 36.90 feet above zero of gage.

BLAIR, NEBR.

Missouri River, 36 miles above Omaha, Nebr.

Short-box chain gage outside of plank walk of span No. 3 of C. & N. W. R. R. bridge, 131 feet from W. end of span. Chain length, 83.3 feet.

Gage B. M., U. S. E., on W. pier of C. & N. W. R. R. bridge across Missouri River, S. side of pier in third course of masonry below lower coping stone, being upper surface of projection, 0.5 foot below top of stone and 2.3 feet NE. of S. corner of pier, is 19.36 feet above zero of gage and 1,008.189 feet above msl.

B. M. $\frac{127}{1}$, U. S. E., copper bolt in tile surmounted by iron pipe in SE. corner of dooryard of H. L. Fisher, Seventh and Washington Streets, is 89.779 feet above zero of gage.

575.4 feet are subtracted from observed readings to obtain true stages.

BLAIRS, S. C.

Broad River, 36 miles from mouth, near Columbia, S. C., on Congaree River.

Section 1 of gage, 0 to 15 feet, enameled steel scale attached to granite bowlders about 100 feet downstream from ferry landing. Section 2, 15 to 30.4 feet, attached to pine tree 150 feet downstream from first section. Section 3, 30 to 45 feet, attached to pine tree 100 feet downstream from first section.

B. M., U. S. G. S., iron post stamped "293 Columbia," 100 feet S. of road crossing about 300 feet N. of depot, 12 feet E. of E. rail of S. Ry., is 38.655 feet above zero of gage and 292.465 feet above msl. B. M., 60d. nail in N. side of tree to which section 3 of gage is attached, is 30.69 feet above zero of gage.

Dam of Parr Shoals Power Co., 13 miles below, makes normal pool of 4.1 feet.

BLOODY ISLAND, CALIF. (P. O. JELLY, CALIF.)

Sacramento River, just below mouths of Battle and Cottonwood Creeks, and 24 miles above Iron Canyon, Calif.

Gage in four sections, attached to trees. Graduation from 0.5 to 40 feet.

CORRIGENDA. (ALL DATES INCLUSIVE)

Owing to changes in elevations of gage zeros and to other causes, corrections as follows should be applied to data in previous publications of Daily River Stages. The corrections given include all corrections in previous volumes, and so far as is known they are complete as of December 31, 1929. In a few instances corrections of 0.1 foot or less have been disregarded.

Albany, N. Y. — Add 0.1 foot from September 19, 1914, to December 31, 1921.

Albany, Oreg. — Subtract 0.3 foot from readings above 19 feet from September 27, 1906, to December 31, 1915.

Alton, Ill. — All readings from January 1, 1917, to June 1, 1923, more or less doubtful except absolute high and low water.

Arkadelphia, Ark. — All readings of zero previous to November, 1, 1924, doubtful. Previous to December 31, 1928, add 0.2 to all readings from 15.9 to 21.8, and 0.3 to all readings above 21.8.

Arkansas City, Ark. — Subtract 0.2 foot from August 19 to September 15, and from September 21 to October 29, 1895. Subtract 0.3 foot from October 30 to November 18, 1895. Subtract 0.4 foot from November 19 to 23, 1895.

Stages from September 23 to 30, 1924, should read as follows:

Date	Stage	Date	Stage
Sept. 23	12.5	Sept. 28	14.6
Sept. 24	12.5	Sept. 29	15.0
Sept. 25	12.7	Sept. 30	15.0
Sept. 26	13.3		
Sept. 27	14.0	Mean	16.6

Arlington, Mo. — Subtract 1 foot from March 1, 1905, to May 31, 1909. From January 1, 1926, U. S. G. S. gage in use. Previous readings not comparable.

Austin, Tex. — Subtract 0.4 foot for 1903 and 1904.

Bainbridge, Ga. — Add 0.8 foot to readings from March 6, 1925, to December 31, 1926.

Batesville, Ark. — Add 5.3 feet from 1904 to 1915.

Baton Rouge, La. — Apply corrections as given in page 20, Daily River Stages, Part XXIII, 1925.

Beatrice, Nebr. — Subtract 0.4 foot from May 15 to December 31, 1919.

Binghamton, N. Y. — Subtract 0.7 foot from April 1, 1902, to January 3, 1903. Subtract 0.9 foot from January 4 to October 13, 1903. Add 0.2 foot from October 14, 1903, to March 5, 1904.

Blairs, S. C. — Add 0.4 foot to readings above 15 feet from September 28, 1908, to December 31, 1915.

Bluff City, Tenn. — Published readings previous to January 1, 1929, not comparable with subsequent ones.

Bon Wier, Tex., or Merryville, La. — Add 1.7 feet from June 3 to December 31, 1916. Subtract 1 foot from April 2, 1919, to December 31, 1923.

Boone, Iowa. — Readings previous to 1924 made from Centerville gage and are approximately 1.9 feet lower than subsequent ones.

Boonville, Mo. — Owing to errors in observations and to gage changes finally computed in 1926, corrections to previous gage readings should be made as follows: November 16, 1873, to July 8, 1875, add 1.6 feet: July 9, 1875, to June 30, 1884, add 0.7 foot; July 1 to December 31, 1884, add 2.5 feet; January 1, 1885, to July 31, 1888, add 0.7 foot; August 1, 1888, to May 31, 1891, readings unreliable. September 10, 1905, should be 7.9 feet. September 11, 1905, should be 7.9 feet. September 12, 1905, should be 8 feet. October 19, 1905, should be 7.2 feet. October 20 to 23, 1905, should be 6.6 feet. October 24, 1905, to August 7, 1906, subtract 2.3 feet; August 8, 1906, to March 6, 1907, subtract 4.2 feet; March 7, 1907, to December 31, 1912, subtract 1.5 feet.

Buchanan, Va. — Add 1.7 feet from April 22, 1913, to December 31, 1914.

Burnside, Ky. — Readings previous to January 1, 1915, not comparable with subsequent ones by from 0.1 to 0.7 foot.

Cairo, Ill. — Gage reading for May 31, 1893, should be 38.7 feet.

Calhoun Falls, S. C. — Add 2 feet from June 29, 1910, to December 31, 1915. Readings previous to July 1, 1928, not comparable with subsequent ones.

Calico Rock, Ark. — From October 21 to December 31, 1914, subtractive corrections as follows should be made to gage readings: Stages from 2.3 to 3.5 feet, 0.1 foot; from 3.6 to 6 feet, 0.2 foot; from 6.1 to 8.6 feet, 0.1 foot; from 8.7 to 10 feet, 0.2 foot; from 10.1 to 11.2 feet, 0.3 foot; from 11.3 to 12.6 feet, 0.4 foot; from 12.7 to 13.5 feet, 0.5 foot; from 13.6 to 14.5 feet, 0.6 foot; from 14.6 to 15.9 feet, 0.8 foot; from 16 to 17.3 feet, 0.9 foot; from 17.4 to 18.2 feet, 1 foot; from 18.3 to 23 feet, 1.1 feet; from 23.1 to 26.6 feet, 1.2 feet; from 26.7 to 29.7 feet, 1.3 feet; from 29.8 to 33 feet, 1.4 feet; from 33.1 to 37.2 feet, 1.5 feet; from 37.3 to 38.7 feet, 1.6 feet; from 38.8 to 39.6 feet, 1.7 feet; from 39.7 to 40.1 feet, 1.8 feet. Readings for 1915 are in error by small amounts, except in volumes corrected by printed slip.

Canton, Okla. — Add 2 feet to all records previous to January 1, 1927.

Cascade Locks, Oreg. — Subtract 6 feet from December 1, 1896, to December 31, 1899. Other corrections as follows: May 11, 1893, stage, should be 18.1 feet; July 6, 1893, 23.8 feet; July 7, 1893, 23.7 feet; December 5, 1893, 9.6 feet; March 13, 1894, 4.6 feet; July 1, 1895, 17.8 feet; July 2, 1895, 18.1 feet; July 11, 1895, 18.4 feet; August 2, 1895, 12.4 feet.

Cedar Rapids, Iowa. — Add 1 foot from March 13 to December 31, 1910.

Celina, Tenn. — From March 1, 1912, to June 17, 1914, readings from 2 to 30.7 feet are too low by variable amounts from 0.2 to 0.5 foot. Add 0.3 foot to readings from 45 to 56 feet.

For 1915 subtract as follows: 0.4 foot from readings below 3 feet; 0.3 foot from readings from 3 to 4.9 feet; 0.2 foot from readings from 5 to 6.9 feet; 0.1 foot from readings from 7 to 9 feet.

Centerville, Ala. — Add 0.3 foot from December 15, 1916, to December 31, 1918.